

Hazardous Substances Emergency Events Surveillance (HSEES) 1995 Annual Report

October 1, 1994 - September 30, 1995

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The Hazardous Substances Emergency Events Surveillance (HSEES) system, established by ATSDR in 1990, collects information on the direct public health impact of non-petroleum hazardous substance emergencies. Missouri's HSEES program completed its second year of data collection on September 30, 1995. As the program continues, new notification sources are explored, information is shared and analysis is done to determine the public health impact of hazardous substance emergency releases in the State of Missouri.

A hazardous substance release is entered into the HSEES system if it meets the following criteria:

1. An uncontrolled or illegal release or threatened release of one or more hazardous substances; **and**
2. The substances that are actually released or threatened to be released include **ALL** hazardous substances, except petroleum products; **and**
3. The quantity of the hazardous substances which are released, or are threatened to be released, need (or would need) to be removed, cleaned up or neutralized according to federal, state or local law; **or**
4. Only a threatened release of hazardous substances exists, but this threat leads to an action, such as an evacuation, that can potentially impact on the health of employees, responders or the general public. This action makes the event eligible for inclusion

into the surveillance system even though the hazardous substances are not released.

Analysis of Data on Hazardous Substances Emergency Events

The Missouri Department of Natural Resources Environmental Services Program maintains Environmental Emergency Response (EER) reports. All environmental emergencies should be reported, 24 hours a day, to (573) 634-2436. A total of 1,694 reports were received from October 1, 1994 through September 30, 1995. Of these, 859 (51%) were petroleum related, and 366 (22%) were potential hazardous substances emergency events, of which 163 met the criteria and were entered into the HSEES system.

Beginning in January 1995, the HSEES program started receiving faxed reports from the U.S. Coast Guard's National Response Center (NRC) on a daily basis. A total of 90 potential hazardous substances emergencies were reported for Missouri, of which 61 (68%) were entered into the HSEES database.

From January 1 through August 31, 1995, 278 reports made to the national Department of Transportation Hazardous Materials Incident System (HMIS) were investigated. The majority of these incidents are from package delivery companies which report damaged packages, even though the amount of substance released is not enough to warrant clean-up or to cause a public health action. Of the 278 reports, 85 (31%) events were entered into the HSEES database. Seventy (82%) of these reports came from three package delivery companies.

Table 1. Most Commonly Released Hazardous Substances, HSEES, Missouri, October 1, 1994 through September 30, 1995.

Substance	No. of Events	Percent of Events
Ammonia	43	(13.5%)
Sulfuric acid	19	(6.0%)
Ethylene glycol	18	(5.7%)
Sodium hydroxide	12	(3.8%)
PCBs	11	(3.5%)
Lead	9	(2.8%)
Phosphoric acid	9	(2.8%)
Hydrochloric acid	8	(2.5%)
Asbestos	8	(2.5%)
Toluene	7	(2.2%)

Out of the 734 events from all sources investigated by the HSEES Coordinator, 329 investigations were entered into the HSEES database; 318 (97%) of these met the case definition. This represents a 65% increase over fiscal year 94, which had 193 events.*

A total of 349 substances were released in the 318 events. The majority of events (292/92%) involved release of only one substance. Table 1 shows the most commonly released substances.

Events occurred throughout the state, in 61 counties and the City of St. Louis. This represents slightly over 50 percent of the counties of the state. Figure 1 shows the number of events occurring in each county.

One hundred seventy (53%) of the releases occurred at fixed facilities while 148 events (47%) were transportation related. Of the 318 events, 271 (85%) occurred on weekdays; 47 events (15%) occurred on the weekend. More than half the events (179/56%) occurred between 6 a.m. and 6 p.m., with 136 (54%)

*Because reports were received and included from the HMIS reporting system, the number of transportation-related cases entered into the Missouri HSEES system greatly increased in FY95. This increase does not necessarily reflect more incidents occurring in FY95 over FY94, only that the HSEES system became aware of more incidents through this added reporting source. This should result in more complete data in subsequent years.

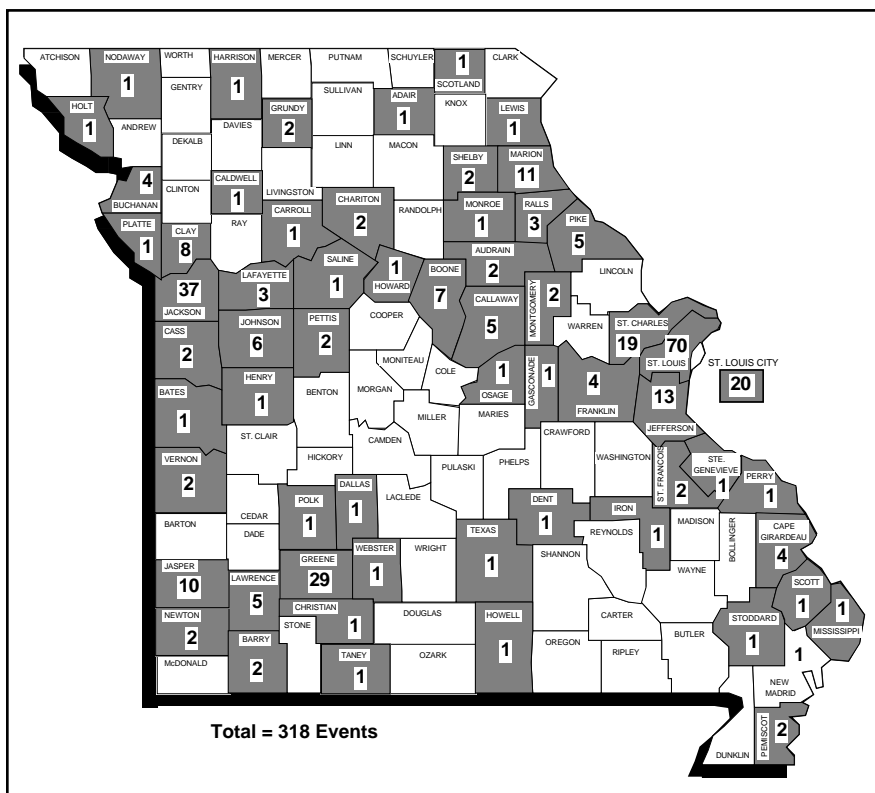


Figure 1. Location of non-petroleum hazardous substances emergency events by county, Missouri HSEES, October 1, 1994–September 30, 1995.

Table 2. Substances Involved in Hazardous Substances Emergency Events Evacuations, HSEES, Missouri, October 1, 1994 through September 30, 1995.		
Substance	No. of Events	Number Evacuated
Ammonia	10	1,352
Acids	3	370
Solvents	3	330
Lead	2	100
Inorganics	2	8
Insecticide	1	1
Asbestos	2	Unknown
Oxidizers	2	Unknown

occurring between the core working hours of 8 a.m. and 5 p.m., Monday–Friday. Forty-five (14%) occurred between 6 p.m. and midnight and 50 (16%) occurred between midnight and 6 a.m. The time of occurrence was unknown for 39 (12%) of the events occurring on weekdays, and 7 (2%) events occurring on weekends.

Evacuations were ordered in 22 (7%) events. The number of people evacuated was known for 17 events and unknown for five events. For the 17 events, a total of 2,161 people were evacuated. The largest number of known people evacuated for an event was 400 and the smallest number was zero. Sixteen of the events involved the evacuation of affected building(s) or part of the building, four were circle/radius evacuations, one was a downwind evacuation and one had no criteria. A total of 27 substances were released in these 22 events.

Ammonia was the most commonly involved substance, occurring in ten events with a total of 1,352 evacuees. Table 2 shows other substances involved. One

event involved release of two forms of ammonia, ammonium nitrate and ammonia phosphate.

Nine (3%) events resulted in 13 injuries and one death. The largest number of injuries associated with an event was two. The most common type of injury reported was respiratory irritation, which occurred in six (43%) of the victims. Other types of injuries/symptoms included eye irritation, chemical burns, thermal burns, skin irritation, dizziness/CNS, vomiting and trauma.

Of the 14 victims, one died due to trauma, six were treated at the scene, five were transported to a hospital but not admitted and one was admitted to a hospital. One person saw a private physician within 24 hours.

Employees were the largest group injured by hazardous substance releases again this year. Twelve employees were injured and one died. One responder was injured. No members of the general public were injured.

Ammonia, lead, hydrogen sulfide and 1,3,5-trioxane were all involved with incidents which resulted in two injuries (14%) each. One release involving three substances (cleaning compound, phosphoric acid and sodium hydroxide) injured both an employee and a responder.

Reporting Events

We are indebted to the Missouri Department of Natural Resources (DNR) Environmental Services Program for helping us investigate these hazardous substances emergency events. We rely heavily on this unit for notification of releases and frequently contact them for circumstances surrounding a release.